Commonwealth of Kentucky
Division for Air Quality

PERMIT STATEMENT OF BASIS

CONDITIONAL MAJOR (DRAFT PERMIT) NO. F-06-061
LEXMARK INTERNATIONAL, INCORPORATED
LEXINGTON, KY 40550
MARCH 23, 2007
RICK SHEWEKAH, REVIEWER

SOURCE ID:	21-067-00012
AGENCY INTEREST #:	1058
ACTIVITY ID:	APE20040002

SOURCE DESCRIPTION:

The Lexington facility of Lexmark International, Incorporated (Lexmark) located at 740 West New Circle Road, Lexington, Kentucky 40550, houses its corporate headquarters and research and development laboratories. The facility conducts research and development for laser printer cartridges and ink jet cartridges for Lexmark's printing technologies. Some of the designs and processes developed at Lexmark's Lexington location are modified and implemented as production level processes at Lexmark's world wide manufacturing plants.

This source consists mainly of surface coating operations and combustion operations. The emissions from this source are volatile organic compounds (VOCs), particulate matter (PM/PM-10), and hazardous air pollutants (HAPs) from the surface coating operations and carbon monoxide (CO), nitrogen oxide (NOx), VOCs, particulate matter (PM/PM-10), and sulfur dioxide (SO_2) from combustion units. All emissions from the combustion units are uncontrolled. The particulate matter emissions are from surface coating operations are subject to 401 KAR 59:010. The particulate emissions from surface coating operations are controlled by disposable mesh filters.

The potential to emit (as defined in 401 KAR 52:001, Section 1 (192)) of CO, NOx, PM-10, and SO_2 for this source are each greater than one hundred (100) tons per year; therefore the source is a major source under 401 KAR 52:020, *Title V Permits*. The source has requested to take limits on the source-wide emissions of CO, NOx, PM-10, and SO_2 to less than Title V major source thresholds. Therefore, the source will be issued a Conditional Major operating permit under 401 KAR 52:030, *Federally Enforceable Permits for Non-major Sources*. This is the initial Conditional Major permit for this source. Prior to 1991, this plant was owned and operated by IBM, Inc.

COMMENTS:

The following prior approvals and approval requests have been considered during this permit review:

(a) This Conditional Major permit (No. F-06-061) is the first Condition Major operating permit issued for this source. The source has previously been issued various state construction and operating permits including the following: C-85-050; C-85-051; C-85-052; C-85-045; C-85-137; C-91-196; S-86-052; S-94-001 and S-94-014;

(b) Lexmark submitted an application, dated September 24, 2004, to the Division requesting the addition of a new coating pilot process line (EP 9807 and EP 9808) in Building 098 of the Lexmark plant. The Division reviewed the application and determined that the addition of the new pilot process was a minor revision to the source's existing air approval (S-86-052) and a letter, dated July 20, 2005, was sent to Lexmark, from the Division, informing them that they could proceed with the project and that no further permitting action was required. This permit revision will be incorporated into the Conditional Major permit;

(c) Lexmark submitted an application, dated August 15, 2006, to the Division requesting the addition of a new coating pilot process line (EP 9810 and EP 9811) in Building 098 of the Lexmark plant. The Division reviewed the application and determined that the addition of the new pilot process was a minor revision to the source's existing air approval (S-86-052) and a letter, dated October 31, 2006, was sent to Lexmark, from the Division, informing them that they could proceed with the project and that no further permitting action was required. This permit revision will be incorporated into the Conditional Major Permit;

(d) Lexmark submitted a letter, dated September 14, 2006, to the Division to clarify the correct heat input capacities of the Boilers at the source after they had inadvertently reported the incorrect heat input capacities in a letter sent to the Division on June 22, 2006. The corrected heat input capacities are as follows:

(i) EP 200-1 – 5.25 MMBtu/hr; and
(ii) EP 803 through EP 808 – 52 MMBtu/hr (each).

(e) On December 12, 2006 Lexmark indicated that the source will be installing two (2) 1,502 horsepower diesel-fired emergency generators. The permittee has submitted a separate application to the Division for approval to install these new units. This notwithstanding, these two (2) new generators and the related applicable requirements have been included in the Conditional Major Permit.

The source consists of the following significant emission units:

(a) Plant Surface Coating

EP 9807 and EP 9808

Description: A batch research operation consisting of one (1) continuous process spray surface coating system pilot line, with two (2) spray booths (identified as EP 9807 and EP 9808) and one (1) conveyor. Each booth is equipped with four (4) automatic HVLP coating applicators and one electric drying oven.
Control Equipment for PM/PM10: Disposable mesh filters, estimated control efficiency is 97%
Estimated system transfer efficiency: Minimum of 15%
Maximum Coating Rate: 7.5 gal/hr (combined)
Construction Date: April 2005

EP 9810 and EP 9811

Description: One (1) batch process spray surface coating system pilot line, consisting of two (2) spray booths (identified as EP 9810 and EP 9811) and one (1) conveyor. Each booth is equipped with one (1) automatic spray applicator. Additional equipment includes lab hoods and electric drying ovens. Rubber rolls and similar plastic printer parts are coated in the spray booths using solvent and non-solvent based coatings.
Control Equipment for PM/PM10: Disposable mesh filters, estimated control efficiency is better than 97%
Estimated system transfer efficiency: 20%
Maximum Coating Rate: 3.2 gal/hr (combined)
Construction Date: November 2006

(b) Two (2) Plant Boiler

EP 200-1 (--)

Description:	Cleaver Brooks Boiler, Model CB900-125LP
Fuel Type:	Natural gas-fired boiler with No. 2 fuel oil as a back-up fuel
Maximum Heat Input Rate:	5.25 MMBtu/hr
Control Device:	None
Construction Date:	March 1977

EP 808 (--)

Description:	Babcock & Wilcox Boiler, Model FM-10-61
Fuel Type:	Natural gas-fired boiler with No. 5 fuel oil as a back-up fuel
Maximum Heat Input Rate:	52.0 MMBtu/hr
Control Device:	None
Construction Date:	January 1974

(c) Five (5) Plant Boilers

EP 803 (--) - EP 807 (--)

Description:	Combustion Engineering Boiler, Model VP-21-11 (EP803 - EP806) Babcock & Wilcox Boiler, Model FM-10 #61B (EP807)
Fuel Type:	Natural gas-fired boiler; No. 5 fuel oil as a back-up fuel (each boiler)
Maximum Heat Input Rate:	52.0 MMBtu/hr (each boiler); Total heat input 260 MMBtu/hr
Control Device:	None
Construction Date:	October 1958 (EP803 - EP806), 1970 (EP807)

(d) EP 800 (--) and EP 810 (--)

Description:	Twenty-one (21) diesel-fired emergency generators identified as EP 800 (001-1, 001-2, 002-2, 005-2 (two emergency generators), 008-1, 009-1, 010-2, 013-1, 013-2, 021-1 (two generators), 032-1, 035-1, 046-1, 058-1, 058-2, 082-1 (two generators), 098-2, and 200-1) and one (1) diesel-fired emergency fire pump.
Maximum Capacity:	4864.2 HP (EP 800), 400 HP (EP810), 5,264.2 HP (combined)
Control Device:	None
Construction Dates:	Prior to July 11, 2005

(e) EP 801 (--) and EP 802 (--)

Description:	Two (2) diesel-fired emergency generators each with a maximum capacity of 1,502 horsepower. The vendor's manufacturing date is after April 1, 2006, but prior to 2007. Each generator has an engine displacement of less than 10 liters per cylinder.
Maximum Capacity:	1,502 horsepower (each); 3,004 horsepower (combined)
Control Device:	None
Construction Dates:	February, 2007

The source consists of insignificant activities as listed in Section C of the permit.

The permittee has indicated during this review that the following emission units have been decommissioned from the source:

Building 010:

(a) (1030) Tech III Ribbon Coaters;
(b) (1031) KILO III, KILO IV, and KILO V;
(c) (1033, 1034, & 1035) Ink Lab Hoods;
(d) (1035) Permeation Gas Chromatograph;
(e) (1036) Ink Mixing for Scriber Coater;
(f) (1039) Paper Printer;
(g) (1040) Dixon Ribbon Coater and Ink Mixing;
(h) (1041) Exhaust for Drums;
(i) (1042) Mini Jet Cleaner;
(j) (1043) Batch Tanks (Inkjet Mixing Tanks);
(k) (1044) Ink Mix Tank;
(l) (1046) Waste Ink Storage Tank;
(m) (1047) Scriber Coater;
(n) (1048) Ink Mixing for Spray Booth (EP#55)(Echo/KILO I Coaters);
(o) (1049) Degreaser;
(p) (1050 & 1061) Hot Melt Ink Mixing (Ball Mills (2) Ball Mill Room Exhaust);
(q) (1051) Ink Mixing for Tech III and KILO Coaters (Correctable Ink Room);
(r) (1053) Nylon Pellets Tank;
(s) (1055) Echo Coaters;
(t) (1056) Degreaser;
(u) (1063) Three Roll Mills;
(v) (1064) Lab hood;
(w) (-) Tank Farm;
(x) (1062) KILO I and KILO II;
(y) Adsorption Unit (System #1) for Tech III Coaters (1030);
(z) Adsorption Unit (System #2) for KILO #I (1062);
(aa) Adsorption Unit (System #3) for KILO #IV (1031);
(bb) Adsorption Unit (System #5) for Dixon and Echo (1040 &1055);
(cc) (1045) Grit Blaster;
(dd) (1055) Paint Spray Booth (Binks) and Curing Ovens;
(ee) (1065) Film Extruders;
(ff) (1040A,B) Viscous Ink Pilot Facility and Baghouse;
(gg) (1062A-F)) Ink Mixing Equipment/Baghouse; and
(hh) (1043/1044) Ink Mixing Equipment.

Building 058:

(a) (5801, 5802, & 5805) QA Lab Hoods;
(b) (5806) Ribbon Coater- Uniform I Drying oven;
(c) (5809) Two Fume Hoods/Oven for Ribbon Testing;
(d) (5812) Corona Treatment;
(e) (5811) Ribbon Coater Uniform II;
(f) (5803) Two Ink Rooms, Uniform Coater III, IV, and V;
(g) (5810A) Grit Blaster;
(h) (5810B) Grit Blaster;
(i) (5810C) Grit Blaster;
(j) (5813) Multi-layer Ribbon Manufacturing;

(k) (5814) Storage for (5813);
(l) (5815) Liquid Toner Production;
(m) (5804) Sample Cleaning (Cleaning Tanks and Hood);
(n) Adsorption Unit (System #4) for Uniform II and III (5811 & 5803).

Building 098:
(a) (9802) Grit Blasters;
(b) (9803) Lab Hoods.

TYPE OF CONTROL AND EFFICIENCY:

The source uses disposable mesh filters to control process particulate emissions from the surface coating operations EP 9807, EP 9808, EP 9810, and EP 9811. Uncontrolled emissions of particulate from these coating operations are less than five (5) tons per year. The manufacturer's particulate control efficiency for the disposable mesh filters is 97% or greater.

Internal standards and manufacturer's specification are used to keep the filters operating properly and to keep the control efficiency at 97% or greater.

All emissions from the combustion units are uncontrolled.

EMISSION FACTORS AND THEIR SOURCE:

Manufacturer's data, MSDS information, and mass balance were used to calculate emissions from the surface coating booths EP 9807, EP 9808, EP 9810, and EP 9811.

The coating used in the booths consists of raw paint, thinner and catalyst. The VOC contents for the raw coating material, thinner and catalyst are taken from MSDS sheets of each individual coating type, thinner type, and catalyst type and are used to calculate VOC emissions. The VOC emissions from coating operations are calculated as if 100% would be emitted from the spray stations where applied; however, in reality some VOC emissions are released when the coated materials are conveyed through the curing ovens. The curing ovens are electric curing ovens; therefore it was not necessary to calculate emissions from these units.

The particulate matter (PM/PM-10) emissions are generated from the overspray during the coating operations. The uncontrolled emissions of particulate from the EP 9807, EP 9808, EP 9810, and EP 9811 are less than application particulate limits in 401 KAR 59:010, *New Process Operations*. The source is currently able to comply with 401 KAR 59:010 without the use of the disposable mesh filters; however since the coating material for these operations could change and consequently the source could use a coating material with a higher solids content, the source is required to use the disposable mesh filters at all times that the coating operations are in use.

U.S. EPA AP-42 and manufacturer's emission factors were used to calculate emissions from combustion units.

Refer to the detailed emission calculations (pages 1 through 14). The potential to emit for the boilers (EP 200-1 and EP 803-EP 808) are based on the primary fuel, which is natural gas. Boiler EP 200-1 also utilizes No. 2 fuel oil as a back-up fuel and boilers EP 803-EP 808 utilize No. 5 fuel oil as a back-up fuel. When using natural gas to calculate emissions for the boilers the source-wide potential to emit for NOx and CO are greater than 100 tons each per year. When using No. 5 fuel oil to calculate emissions for the boiler the source-wide potential to emit for NOx, SO_2, PM-10, and CO are greater than 100 tons each per year. Therefore, SO_2 and PM-10 have also been limited to less than 100 tons each in the permit along with emissions of NOx and CO because theoretically the source could utilize back-up fuel and exceed the Part 70 major source thresholds.

APPLICABLE REGULATIONS:

(a) 401 KAR 52:030, *Federally-Enforceable Permits for Non-Major Sources*

In order to preclude applicability of 401 KAR 52:020, *Title V Permits* the source has voluntarily requested to limit the source-wide emissions of particulate matter with a size of less than ten (10) micrometers (PM_{10}), nitrogen oxides (NOx), sulfur dioxide (SO_2), and carbon monoxide (CO) each to less than 100 tons per year. The unlimited emissions of HAPs for this source are less than 10 tons per year for a single HAP and less than 25 tons per year for the combined HAPs and there are no corresponding limitations in the permit. As such, this source is not a major source under Part 70. The source will be issued a Conditional Major permit under 401 KAR 52:030, *Federally-Enforceable Permit for Non-Major Source*.
To preclude the applicability of 401 KAR 52:020, *Title V Permits*, the following source-wide emission limits shall apply:

(i) Sulfur dioxide (SO_2) emissions: < 90 tons per year;
(ii) Particulate matter, with a size of less than ten (10) micrometers (PM_{10}), emissions: < 90 tons per year;
(iii) Nitrogen oxides (NOx) emissions: < 90 tons per year; and
(iv) Carbon monoxide (CO) emissions: < 90 tons per year.

In order to make the conditional major emission limits practically enforceable the following limits shall apply:

(1) The total emissions of sulfur dioxide (SO_2) shall be limited by the following equation, with compliance determined at the end of each month:

$$SO_2 \text{ Emissions} = \sum_{n=1}^{m} [(FO5_B * 0.0785) + (NG_B * 0.6) + (FO2_B * 0.071) + (FO2_G * 0.042) / 2{,}000] < 90.0 \text{ tons per twelve (12) consecutive month period}$$

Where,
n = Month Number (i.e. January = 1, February = 2, etc.);
m = Total Number of Months in Period;
$FO5_B$ = Usage of No. 5 Fuel Oil (gallons) for Boilers EP 803 through EP 808;
NG_B = Usage of Natural Gas (MMscf) for Boilers EP 803 through EP 808 and EP 200-1;
$FO2_B$ = Usage of No. 2 Fuel Oil (gallons) for Boiler EP 200-1;
$FO2_G$ = Usage of No. 2 Fuel Oil (gallons) for Emergency Generators and Fire Pump.

This fuel usage limit shall restrict the source-wide emissions of SO_2 to less than 90 tons per year, based on AP-42 emission factors.

The emission factors provided in the equation above were based on AP-42 emission factors for External Combustion Sources and Stationary Internal Combustion Sources (No. 5 fuel oil, Section 1.3; natural gas, Section 1.4; No. 2 fuel oil, Section 3.3 and Section 1.3) were determined as follows:

No. 5 Fuel Oil SO_2 Emission Factor ($FO5_B$) = 157 * 0.5% sulfur (lb/Kgal) / 1,000 (gal/Kgal) = 0.0785 (lb/gal)

Natural Gas SO_2 Emission Factor (NG_B) = 0.6 (lb/MMscf)

No. 2 Fuel Oil SO_2 Emission Factor ($FO2_B$) = 142 * 0.5% sulfur (lb/Kgal) / 1,000 (gal/Kgal) = 0.071 (lb/gal)

No. 2 Fuel Oil SO_2 Emission Factor ($FO2_G$) = 0.0021 (lb/hp-hr) / 7000 (btu/hp-hr) * * 140,000 (btu/gal)) = 0.042 (lb/gal)

(2) The total emissions of nitrogen oxides (NOx) shall be limited by the following equation, with compliance determined at the end of each month:

$$\text{NOx Emissions} = \sum_{n=1}^{m} [(FO5_B * 0.055) + (NG_B * 100) + (FO2_B\ 0.02) + (FO2_G * 0.62) / 2{,}000] < 90.0 \text{ tons per twelve (12) consecutive month period}$$

Where,
n = Month Number (i.e. January = 1, February = 2, etc.);
m = Total Number of Months in Period;
$FO5_B$ = Usage of No. 5 Fuel Oil (gallons) for Boilers EP 803 through EP 808;
NG_B = Usage of Natural Gas (MMscf) for Boilers EP 803 through EP 808 and EP 200-1;
$FO2_B$ = Usage of No. 2 Fuel Oil (gallons) for Boiler EP 200-1;
$FO2_G$ = Usage of No. 2 Fuel Oil (gallons) for Emergency Generators and Fire Pump.

This fuel usage limit shall restrict the source-wide emissions of NOx to less than 90 tons per year, based on AP-42 emission factors.

The emission factors provided in the equation above were based on AP-42 emission factors for External Combustion Sources and Stationary Internal Combustion Sources (No. 5 fuel oil, Section 1.3; natural gas, Section 1.4; No. 2 fuel oil, Section 3.3 and Section 1.3) were determined as follows:

No. 5 Fuel Oil NOx Emission Factor ($FO5_B$) = 55 (lb/Kgal) / 1,000 (gal/Kgal) = 0.055 (lb/gal)

Natural Gas NOx Emission Factor (NG_B) = 100 (lb/MMscf)

No. 2 Fuel Oil NOx Emission Factor ($FO2_G$) = 0.0310 (lb/hp-hr) / 7000 (btu/hp-hr) * 140,000 (btu/gal) = 0.62 (lb/gal)

No. 2 Fuel Oil NOx Emission Factor ($FO2_B$) = 20 (lb/Kgal) / 1,000 (gal/Kgal) = 0.02 (lb/gal)

Compliance with the NOx and SO_2 emission limitations above will also limit source-wide emissions of PM-10 and CO to less than 100 tons per year each. As such, limitations for PM-10 and CO have not been incorporated into the permit.

(3) The sulfur content of No. 5 fuel oil input to the Boilers (EP 803 through EP 808), shall not exceed 0.5% by weight.

(4) The sulfur content of No. 2 fuel oil input to the Boiler (EP 200-1), shall not exceed 0.5% by weight.

(5) The hours of operation for the twenty-three (23) diesel-fired emergency generators identified as EP 800 (001-1, 001-2, 002-2, 005-2 (two emergency generators), 008-1, 009-1, 010-2, 013-1, 013-2, 021-1 (two generators), 032-1, 035-1, 046-1, 058-1, 058-2, 082-1 (two generators), 098-2, and 200-1), EP 801, EP 802, and the one (1) diesel-fired emergency fire pump, identified as EP 810, shall each be limited to less than five hundred (500) hours per twelve (12) consecutive month period, with compliance determined at the end of each month.

(6) The sulfur content of No. 2 fuel oil for the twenty-three (23) diesel-fired emergency generators and the one (1) diesel-fired emergency fire pump shall not exceed 0.5% by weight.

(b) 401 KAR 59:010, *New Process Operations*

Pursuant to 401 KAR 59:010, Section 1, the requirements of this rule apply to each affected facility, associated with a process operation, which is not subject to another emission standard with respect to particulates in 401 KAR Chapter 59, commenced on or after July 2, 1975. The requirements of this rule are included in the permit for the following emission units:

(1) Pilot Spray Coating Line (EP 9807 and EP 9808); and
(2) Pilot Spray Coating Line (EP 9810 and EP 9811).

Mass Emission Limit pursuant to 401 KAR 59:010 Section 3(2): For process rates greater than or equal to 1,000 lbs/hr but less than 60,000 lbs/hr, the allowable emissions of particulate matter shall not exceed : $3.59 \times (\text{Tons Processed})^{0.62}$ lbs/hr. For processing rates of 1000 lbs/hr or less, the allowable emission rate is 2.34 lbs/hr.

(c) 401 KAR 61:015, *Existing Indirect Heat Exchangers*

Boilers EP 803 through EP 807, which were each installed before April 9, 1972, are subject to 401 KAR 61:015, *Existing Indirect Heat Exchangers*, which is applicable to existing indirect heat exchangers with a capacity of 250 MMBtu/hr or less and commencing before April 9, 1972. The maximum heat input capacities of the Boilers EP 803 through EP 807 (52.0 MMBtu/hr each) are less than 250 MMBtu/hr. There are no control devices associated with any of the Boilers at this source.

Pursuant to 401 KAR 61:015, Section 4(1), Boiler EP 803 through EP 807 are subject to the allowable PM emission rate of 401 KAR 61:015, Section 4(1) based on the total heat input of all boilers at the facility. As such, PM from Boilers EP 803 through EP 807 each shall not exceed 0.335 lb/MMBtu actual heat input. The allowable emission rate is determined in accordance with 401 KAR 61:015, Section 3(1) based on the total rated heat input capacity of the existing facilities as follows:

Allowable particulate emission rate (pounds of PM per MMBtu) =
$1.2825 \times (\text{total heat input capacity (MMBtu/hr)})^{-0.2330}$ =
$1.2825 \times (260 + 52 + 5.25 \text{ MMBtu/hr})^{-0.2330} = 0.335$ pounds of PM per MMBtu
$1.2825 \times (317.25 \text{ MMBtu/hr})^{-0.2330} = 0.335$ pounds of PM per MMBtu

The permittee may assure compliance with the PM standards by maintaining the affected facilities in good working order and by performing visual observations of the stack exhausts.

Pursuant to 401 KAR 61:015 Section 4 (3), emissions from each boiler shall not exceed (40) percent opacity with respect to PM except:

(1) That, for cyclone or pulverized fired indirect heat exchangers, a maximum of sixty (60) percent opacity shall be permissible for not more than one (1) six (6) minute period in any sixty (60) consecutive minutes;
(2) For emissions from an indirect heat exchanger during building a new fire for the period required to bring the boiler up to operating conditions provided the method used is that recommended by the manufacturer and the time does not exceed the manufacturer's recommendations.

Pursuant to 401 KAR 61:015, Section 5(1), Boilers EP 803 through EP 807 are subject to the allowable SO_2 emission rate of 401 KAR 61:015, Section 5(1) based on the total heat input of all boilers at the facility. As such, SO_2 from Boilers EP 803 through EP 807 each shall not exceed 8.787 lb/MMBtu actual heat input, based on a 24-hour average. The allowable emission rate is determined in accordance with 401 KAR 61:015, Section 3(1) based on the total rated heat input capacity of the existing facilities as follows:

Allowable sulfur dioxide emission rate using gaseous or liquid fuels (pounds of SO_2 per MMBtu) =
8.0189 x (total heat input capacity (MMBtu/hr))$^{-0.1260}$ =
8.0189 x (260 + 52 + 5.25 MMBtu/hr)$^{-0.1260}$
8.0189 x (317.25 MMBtu/hr)$^{-0.1260}$ = 8.787 pounds of SO_2 per MMBtu

In accordance with 401 KAR 61:015, Section 6(3) the rate of each fuel burned shall be measured daily and recorded. The heating value and ash content of fuels shall be ascertained at least once per week and recorded.

(d) *401 KAR 59:015, New Indirect Heat Exchangers*

Boilers EP 200-1 and EP 808, which were each installed after April 9, 1972, are subject to 401 KAR 59:015, *New Indirect Heat Exchangers,* which is applicable to indirect heat exchangers with a capacity of 1 MMBtu/hr or greater and commencing after April 9, 1972. The maximum heat input capacities of the two Boilers EP 200-1 and EP 808 (5.25 and 52.0 MMBtu/hr, respectively) are greater than the rule applicability threshold; therefore, 401 KAR 59:015 is applicable to these units. There are no control devices associated with any of the Boilers at this source.

Pursuant to 401 KAR 59:015, Section 4 (1), Boilers EP 200-1 and EP 808 are subject to the allowable PM emission rate of 401 KAR 59:015, Section 4(1) based on the total heat input of all boilers at this facility. The pre-existing total heat input capacity from the "existing" boilers (see preceding paragraph (b)) is 260 MMBtu/hour. Since the total heat input capacity for all affected facilities is greater than 250 MMBtu/hr, the allowable particulate emission rate is determined in accordance with 401 KAR 59:015, Section 4(1)(b) as 0.10 lbs/MMBtu actual heat input. The permittee may assure compliance with the PM standards by maintaining the affected facilities in good working order and by performing visual observations of the stack exhausts.

Pursuant to 401 KAR 59:015 Section 4(2), emissions from each boiler shall not exceed (20) percent opacity with respect to PM except:

(1) That, for indirect heat exchangers with a heat input capacity of less than 250 MMBtu/hr, a maximum of forty (40) percent opacity shall be permissible for not more than one (1) six (6) minute period in any sixty (60) consecutive minutes;
(2) For emissions from an indirect heat exchanger during building a new fire for the period required to bring the boiler up to operating conditions provided the method used is that recommended by the manufacturer and the time does not exceed the manufacturer's recommendations.

401 KAR 59:015, Section 5(1)(b), applies to the operating and emission limitations for sulfur dioxide (SO_2) from affected facilities with a total heat input capacity of greater 250 MMBtu/hr. Emissions of SO_2 from the Boilers EP 200-1 and EP 808 shall not exceed 0.8 lb/MMBtu actual heat input, based on a 24-hour average.

(e) 40 CFR 60, Subpart IIII, *New Source Performance Standards for Stationary Compression Ignition Internal Combustion Engines*

The requirements of 40 CFR 60 Subpart IIII, *New Source Performance Standards for Stationary Compression Ignition Internal Combustion Engines*, are applicable to the two (2) emergency generators, identified as EP 801 and EP 802, because the units will be installed after July 11, 2005 and each generator has a vendor manufacturing date after April 1, 2006. The related provisions of this rule, including emission and operating limitations, testing, monitoring, recordkeeping and reporting, are incorporated in the permit.

NON-APPLICABLE REGULATIONS:

(a) 40 CFR 60, Subpart IIII, *New Source Performance Standards for Stationary Compression Ignition Internal Combustion Engines*

The requirements of 40 CFR 60 Subpart IIII, *New Source Performance Standards for Stationary Compression Ignition Internal Combustion Engines*, do not apply to the twenty-one (21) emergency generators identified as EP 800 (001-1, 001-2, 002-2, 005-2 (two emergency generators), 008-1, 009-1, 010-2, 013-1, 013-2, 021-1 (two generators), 032-1, 035-1, 046-1, 058-1, 058-2, 082-1 (two generators), 098-2, and 200-1) and the one (1) emergency diesel fire pump (EP 810) because the units were installed prior to July 11, 2005, and the units have not been reconstructed since construction.

(b) 40 CFR 60, Subpart Dc, *New Source Performance Standards for Small Industrial-Commercial-Institutional Steam Generating Units*

Boilers EP 803 through EP 808, which each have a maximum heat input capacity of less than 100 MMBtu/hr but greater than 10 MMBtu/hr, are not subject to the requirements of the New Source Performance Standards (NSPS) (40 CFR Part 60, Subpart Dc) (Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units) because none of these steam generating units were constructed, modified, or reconstructed after June 9, 1989. The requirements of this rule are not applicable to Boiler EP 200-1 because the maximum heat input capacity of this boiler is less than 10 MMBtu/hr.

(c) 40 CFR 60, Subpart D, *New Source Performance Standards for Fossil-Fuel-Fired Steam Generators for Which Construction is Commenced After August 17, 1971*

Boilers EP 200-1 and EP 803 through EP 808 are not subject to the requirements of the New Source Performance Standard, (40 CFR 60, Subpart D) because each boiler has a maximum heat input capacity of less than 250 MMBtu/hr. Therefore, the requirements of 40 CFR 60, Subpart D are not included in this permit.

(d) 40 CFR 60, Subpart Da, *New Source Performance Standards for Electric Utility Steam Generating Units for Which Construction is Commenced After September 18, 1978*

Boilers EP 200-1 and EP 803 through EP 808 are not subject to the requirements of the New Source Performance Standard (40 CFR 60, Subpart Da) because each boiler has a maximum heat input capacity of less than 250 MMBtu/hr, each boiler was constructed prior to September 18, 1978, and this source is not an electric utility plant. Therefore, the requirements of 40 CFR 60, Subpart Da are not included in this permit.

(e) 40 CFR 60, Subpart Db, *New Source Performance Standards for Industrial-Commercial-Institutional Steam Generating Units*

Boilers EP 200-1 and EP 803 through EP 808 are not subject to the requirements of the New Source Performance Standard (40 CFR 60, Subpart Db) because each boiler has a maximum heat input capacity of less than 100 MMBtu/hr. Therefore, the requirements of 40 CFR 60, Subpart Db are not included in this permit.

(f) 40 CFR 63, Subpart DDDDD, *National Emission Standards for Hazardous Air Pollutants: Industrial, Commercial, and Institutional Boilers and Process Heaters*

Boilers EP 200-1 and EP 803 through EP 808 are not subject to the requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Industrial, Commercial, and Institutional Boilers and Process Heaters (40 CFR Part 63, Subpart DDDDD) because this is not a major source of hazardous air pollutant (HAP) emissions.

(g) 401 KAR 63:002, *National Emission Standards for Hazardous Air Pollutants*

401 KAR 63:002, Section 3, incorporating by reference 40 CFR 63, Subpart PPPP- *National Emission Standards for Hazardous Air Pollutants for Surface Coating of Plastic Parts and Products*. The requirements of this rule apply to a new, reconstructed, or existing affected source, that uses 378 liters (100 gallons (gal)) per year, or more, of coatings that contain hazardous air pollutants (HAP) in the surface coating of plastic parts and products and that is a major source, is located at a major source, or is part of a major source of emissions of HAP. The compliance date for 40 CFR 63, Subpart PPPP is April 19, 2007.

The potential emissions of HAPs for this source are less than 10 tons for a single HAP and less than 25 tons for the combined HAPs. As such, this source is not subject to the requirements of 40 CFR 63, Subpart PPPP because it is not a major source of HAP emissions.

(h) 401 KAR 51:017, *Prevention of Significant Deterioration of Air Quality*

This source, which is one of the listed source categories under 401 KAR 51:017, Section 1(a).1.b, has potential unlimited emissions of NOx, CO, and SO_2 that are each greater than PSD major source threshold of 250 tons per year. The potential unlimited emissions of VOC and PM/PM-10 are each less than PSD major source thresholds. In order to comply with the requirements of 401 KAR 52:030, *Federally-Enforceable Permits for Non-Major Sources*, the source has voluntarily requested to limit source-wide emissions of NOx, CO, and SO_2 each to less than 100 tons per year. As such, the requirements of 401 KAR 51:017 (*Prevention of Significant Deterioration of Air Quality)* do not apply.

(i) 401 KAR 50:012, Section 1, *General Application of Administrative Regulations and Standards*

Pursuant to 401 KAR 50:012, Section 1(2), in the absence of a standard specified in these administrative regulations, all major air contaminant sources shall as a minimum apply control procedures that are reasonable, available, and practical. This rule does not apply to this source because they have accepted voluntary limits on fuel usage such that they are not a major source of air contaminants.

(j) 40 CFR 64, *Compliance Assurance Monitoring* (CAM)

40 CFR 64, *Compliance Assurance Monitoring* (CAM), does not apply to any emission unit at this source because it is being approved to operate under a Conditional Major permit. Pursuant to 40 CFR 64.2(a), the requirements of this rule are applicable only to sources required to obtain a Title V (Part 70 or 71) permit.

EMISSION AND OPERATING CAPS DESCRIPTION

To preclude the applicability of 401 KAR 52:020, *Title V Permits*, and 401 KAR 51:017, *Prevention of Significant Deterioration of Air Quality*, the following source-wide emission limits shall apply:

(1) Sulfur dioxide (SO_2) emissions: < 90 tons per year;
(2) Particulate matter, with a size of less than ten (10) micrometers (PM_{10}), emissions: < 90 tons per year;
(3) Nitrogen oxides (NOx) emissions: < 90 tons per year; and
(4) Carbon monoxide (CO) emissions: < 90 tons per year.

In order to make the conditional major emission limits practically enforceable the following limits shall apply:

(a) The total emissions of sulfur dioxide (SO_2) shall be limited by the following equation, with compliance determined at the end of each month:

$$SO_2 \text{ Emissions} = \sum_{n=1}^{m} [(FO5_B * 0.0785) + (NG_B * 0.6) + (FO2_B * 0.071) + (FO2_G * 0.042) / 2{,}000] < 90.0 \text{ tons per twelve (12) consecutive month period}$$

Where,
n = Month Number (i.e. January = 1, February = 2, etc.);
m = Total Number of Months in Period;
$FO5_B$ = Usage of No. 5 Fuel Oil (gallons) for Boilers EP 803 through EP 808;
NG_B = Usage of Natural Gas (MMscf) for Boilers EP 803 through EP 808 and EP 200-1;
$FO2_B$ = Usage of No. 2 Fuel Oil (gallons) for Boiler EP 200-1;
$FO2_G$ = Usage of No. 2 Fuel Oil (gallons) for Emergency Generators and Fire Pump.

This fuel usage limit shall restrict the source-wide emissions of SO_2 to less than 90 tons per year, based on AP-42 emission factors.

(b) The total emissions of nitrogen oxides (NOx) shall be limited by the following equation, with compliance determined at the end of each month:

$$\text{NOx Emissions} = \sum_{n=1}^{m} [(FO5_B * 0.055) + (NG_B * 100) + (FO2_B\ 0.02) + (FO2_G * 0.62) / 2{,}000] < 90.0 \text{ tons per twelve (12) consecutive month period}$$

Where,
n = Month Number (i.e. January = 1, February = 2, etc.);
m = Total Number of Months in Period;
$FO5_B$ = Usage of No. 5 Fuel Oil (gallons) for Boilers EP 803 through EP 808;
NG_B = Usage of Natural Gas (MMscf) for Boilers EP 803 through EP 808 and EP 200-1;
$FO2_B$ = Usage of No. 2 Fuel Oil (gallons) for Boiler EP 200-1;
$FO2_G$ = Usage of No. 2 Fuel Oil (gallons) for Emergency Generators and Fire Pump.

This fuel usage limit shall restrict the source-wide emissions of NOx to less than 90 tons per year, based on AP-42 emission factors.

Compliance with the NOx and SO_2 emission limitations above will also limit emissions of PM-10 and CO to less than 100 tons per year each. As such, limitations for PM-10 and CO have not been incorporated into the permit.

(c) The sulfur content of No. 5 fuel oil input to the Boilers (EP 803 through EP 808), shall not exceed 0.5% by weight.

(d) The sulfur content of No. 2 fuel oil input to the Boiler (EP 200-1), shall not exceed 0.5% by weight.

(e) The hours of operation for the twenty-three (23) diesel-fired emergency generators identified as EP 800 (001-1, 001-2, 002-2, 005-2 (two emergency generators), 008-1, 009-1, 010-2, 013-1, 013-2, 021-1 (two generators), 032-1, 035-1, 046-1, 058-1, 058-2, 082-1 (two generators), 098-2, and 200-1), EP 801, EP 802, and the one (1) diesel-fired emergency fire pump, identified as EP 810, shall each be limited to less than five hundred (500) hours per twelve (12) consecutive month period, with compliance determined at the end of each month.

(f) The sulfur content of No. 2 fuel oil for the twenty-three (23) diesel-fired emergency generators and the one (1) diesel-fired emergency fire pump shall not exceed 0.5% by weight.

PERIODIC MONITORING:

In accordance with 401 KAR 61:015, Section 6 (3), the permit requires the source to perform daily monitoring and recordkeeping of the fuel usage for the Boilers (EP 803 through EP 807) and the heating value and ash content of fuels shall be determined at least once per week and recorded.

The permit also requires the source to perform monthly monitoring and recordkeeping of the fuel usage for Boilers (EP 803 through EP 808 and EP 200-1), the emergency generators (EP 800), and emergency diesel-fired fire pump (EP 810). The permit requires compliance be demonstrated on a monthly basis, along with quarterly reporting of fuel usage.

The permit also requires the source to perform monthly visible emission notations for surface coating booths EP 9807, EP 9808, EP 9810, and EP 9811.

CREDIBLE EVIDENCE:

This permit contains provisions that require specific test methods, monitoring, or recordkeeping, be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.

PERMIT HISTORY:

Rev #	Permit Type	Log #	Issuance Date	Expiration Date	Summary of Actions
---	Initial Issuance, Conditional Major Permit (F-06-061)	---	TBD	TBD	Initial Issuance, Conditional Major Permit (F-06-061)